

Yarmouk University

Faculty of the Economic

Department of Banking & Finance

Cost of Equity and Risk in Cash Flow and Accrual Components of Earnings: The Case of Amman Stock Exchange (2000-2010)

"تكلفة الملكية ومخاطر مكونات العوائد من التدفقات النقدية والمستحقات: حالة دراسية من بورصة عمان للاوراق المالية 2000-2010"

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Abstract

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The purpose of this thesis is to examine if risk in cash flow and accrual components of earnings and risk in earnings are important determinants of firm's cost of equity, and what is the most important determinant of them. Also, it examines the ability of these components to capture firm risk in the case of smoothing. The sample consists of services and industrial firms listed in Amman Stock Exchange during the period (2000-2010). Initially, we examine risk in earnings to estimate cost of equity. Then examine the role of risk in earnings cash flow and accrual in estimating the implied cost of equity that use it as a proxy of firm risk. Therefore, we test its role in capturing firm risk. Also, he develops a model of earnings smoothing, and examine the role of risk in earnings components in capturing firm risk in the case of earnings smoothing. Also, we examine the effect of profit margin and the length of the operating cash cycle on the relation between firm risk and risk in cash flows and accruals. The results show that the aggregate earnings is a good determinant for firm's cost of equity. Risk in operating cash flow and in accruals is not a good determinant to the firm implied cost of equity. Also, the risk in cash flow and accrual components of earnings is a not good tool to capture the firm risk in case of earnings smoothing. The profit margin and operating cash cycle don't affect the relation between implied cost of equity and risk in operating cash flow and accruals, and that is because this linkage needs clear dividend policy,

and constant growth in dividend, which is not available in the sample companies in ASE. So, we recommend that they should follow clear (not random) dividend policy and clear growth rate in dividend, so they can detect the risk of the company through some accounting variables and thus estimate the cost of equity.

Key words: Cost of Equity, Earnings, Operating Cash Flow, and Accruals.

الاهداء

إلى من علمني حب العلم وأضاء في قلبي سراجه

"والدي الحبيب"

إلى النبع المتدفق الذي يفيض حبا وحنانا

"والدتي الحبيبه"

إلى الغالي حبيب قلبي أخي

"محمد"

إلى سندي وذخري وبهجة حياتي

"أخواتي"

إلى أعز وأغلى صديقين على قلبي

"عبدالله ومصطفى"

إلى كل من لهم في قلبي مكانة كبيرة ومنزلة رفيعة

أهدي اليهم جميعا هذا الجهد المتواضع

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Chapter One

Framework of the Study

1.1 Introduction

It is known that sources of financing are one of the most important challenges facing the corporations; it is also known that there are two basic sources that corporations financed themselves by it, namely debt and equity (Ben-Horim, 1987, p.141-143). Cost of funding sources remains the most important issue, (Ben-Horim, 1987, p.146) define cost of debt as "the rate of interest on the firm's new debt, it is the rate of return the firm's bondholders would require on a new bond issue". While (Pandey, 1995, p.452) define cost of equity as "the rate of return on dividends foregone by equity shareholders". Equity or common equity can be raised by two ways, either by retained some dividends and reinvest it, or by issuing and selling new stocks. Conceptually, there is no difference between the two from the cost of equity point of view, except that issuing new equity involves floatation cost that makes it more expensive than using retained earnings. In the finance science there is four popular ways to calculate the cost of retained earnings as the follow: 1- Historical Rate of Return 2- Discounted Cash Flow (DCF) Approach 3- The CAPM Approach 4- Bond-Yield-Plus-Premium Approach. While the cost of issuing new equity has one method similar to the Discounted Cash Flow (DCF) Approach but take the flotation cost into consideration (Ben-Horim, 1987, p.149-154).

In the meantime, we must mention the cash flows and accruals that they are the component of earnings or net income. Where cash flows and accruals are

essential to firm’s net income. Hence, (Watson, Besly and Brigham, 1996, p.522) define cash flows as “the actual cash, as opposed to accounting net income that a firm receives or pays during some specific period”, and accrual accounting which under accrual basis revenues are recognized when earned and expenses when incurred, regardless of the receipt or payment of cash (Subramanyam and Wild, 2009, p.76).

1.2 Objectives of the Study

The main objective of the study is to examine the risk in cash flow and accrual components of earnings and it’s importance in determining the firm’s cost of equity. Therefore:

1- It examines the fundamental sources of risk by looking at earnings components risk.

2- It examines the earnings smoothing and it’s ability to capture firm’s risk, especially when the firm exhibits high earnings smoothness, as well as how cash flows and accruals can be used to unravel the effect of smoothing in estimating firm risk.

3- It test the effect of operating cash cycle and profit margin on the relation between cost of equity and risk in cash flows and accruals.

1.3 Importance of the Study

While a firm's cost of debt is relatively easy to be determined from observation of interest rates in the capital markets, its cost of equity is unobservable and must be estimated. It is important to focus on disaggregating the earnings into cash flows and accruals and disaggregating accruals into many components. This disaggregating gives more accurate

results in estimating the cost of equity as many recent studies revealed. While several papers have focused on earnings risk measures, little is known about the link between risk in earnings components and firms' cost of equity. Finally the conditions under which cash flows and accruals are incrementally informative about firm risk and the relation between risk in cash flows and accruals and firms' cost of equity are not obvious without a formal analysis.

1.4 Methodology Data and Sample

To understand and shows that risk in cash flow and accrual components of earnings is an important determinant of a firm's cost of equity. Also, its role to capture the firm risk for our sample companies, it is imperative to use a stepwise regression in order to test the thesis of this study and get out with reasonable and reliable results. Indeed a different set of independent variables were tested to show its ability in estimation the cost of equity, and capturing the firm risk in case of earnings smoothing.

This study cover industrial and services companies listed in Amman Stock Exchange (ASE), during the period (2000-2010).

The source of such data will be the Jordanian shareholding company's guide, companies' web sites, and the financial reports of all companies listed in ASE. The study excluded the financial sector, because it has special measures in area of risk measurements.

1.5 Thesis Structure

The study is organized as follows: Chapter One starts with the genera; frame work, followed by Chapter Two which contains theoretical background. Chapter Three presents literature review. Chapter Four includes the data and methodology used in this study. Empirical analysis and results and recommendations are introduced in Chapter Five.

Chapter Two
Theoretical Background

2.1 Introduction

This chapter handles the important topics in theory related to the subject matter of this thesis, such as definitions, reasons and styles. So that it consists of 6 sections. The first is concerned with the cost of equity, then the second deals with earnings definitions and strategies, the third deals with cash flows definitions and component, the fourth deals with risk, and conventional and statistical techniques to handle risk, the fifth deals with accounting accruals, and the last section presents myths and truths about accruals and cash flows.

2.2 Cost of Equity

2.2.1 Definition

There are many definitions for cost of equity most of them are compatible, Weston, Besly and Brigham, 1996, p.577) define it as "the rate of return required by stockholders on a firm's common stock", (Lawrence and Haley, 1988, p.200) define it as "the rate of return required by the stockholders of the firm", (Pandey, 1995, p.452) define it as "the rate of return on dividends foregone by equity shareholders". It also called the cost of existing stocks or the cost of internally equity and can raise equity capital externally by issuing new shares (Pandey, 1995, p.451).

Cost of retained earnings have not been distributed to common stockholders as dividends, so this earnings is right for stockholders and we assigned it cost to meet the opportunity cost principle, because this earnings serve to compensate stockholders for the use of their capital, and this cost is opportunity cost for reinvesting this retained earnings (Weston, Besly and Brigham, 1996, p.576-577).

2.2.2 Approaches to Calculate the Cost of Equity

Retained earnings are not free of cost for two reasons:

1- It is the opportunity cost of equity funds, and if the company distributes it, the owners can reinvest these retained funds in other stocks and securities. 2- Because it is the main aim for management to maximize stockholders wealth, so they should pay a reasonable cost for undistributed stockholders return to keep their rights and values (Pandey, 1995, p.442-443).

The cost of equity calculated using four approaches:

2.2.2.1 Historical Rate of Return

It is the first method to calculate the cost of equity by taking the last recent five or ten years, and then calculate the rate that include dividend and any appreciation on prices when investor holds the stock from the beginning of the period to the end of the period. This method assumes that investors, on average, earn what they expect to earn, and adopts three additional assumptions: (Lawrence and Haley, 1988, p.200).

1. Investors don't expect significant changes in expectations about future firm performance during the expectations period.
2. No significant changes in the level of interest rate during the expectations period.
3. No change about investor attitude toward risk.

In general, the opportunity to hold assumptions true is too weak, and this method is not very reliable.

Ks = D1/P0

Where:

Ks: is the cost of equity.

D1: current dividend, it is constant

P0: current stock price, almost constant (Lawrence and Haley, 1988, p.200).

2.2.2.2 Discounted Cash Flow (DCF) Approach

It uses the dividends, constant growth rate and current price to calculate the cost of equity. It assumes that stocks are in equilibrium, with the expected and required rates of return being equal (Weston, Besly and Brigham, 1996, p.577).

Ks = (D1/P0) + g

Where:

Ks: is the cost of equity.

D1: expected dividend, D1=D0 (1+g).

D0: past dividend.

P0: current stock price.

g: growth rate (Weston, Besly and Brigham, 1996, P.579).

It can be argued that calculating cost of equity by using this method is very hard depending on the difficulty of estimate the expected dividends and because the future earnings and dividends are expected to grow over time (Pandey,1995, p.452).

2.2.2.3 The CAPM Approach

It uses the Capital Asset Pricing Model (CAPM) to estimate the cost of equity, by using risk-free rate and market risk premium which is the difference between market return and risk free and the beta coefficient of the stock.

$Ks = Krf + (Km- Krf)\ \beta s$

Where:

Ks: is the cost of equity.

Krf: is the risk-free rate.

Km: is the market return.

Bs: is the beta of stock.

(Km- Krf): is the market risk premium.

(Km- Krf) βs: is the stock(s) risk premium (Weston, Besly and Brigham, 1996, p.578).

2.2.2.4 Bond-Yield-Plus-Premium Approach

It estimates the cost of equity by adding a risk premium of three to five percentage points to the interest rate on the firm's long-term debt.

Ks = Bond Yield + Risk premium.

Bond Yield: is the interest rate on the firm's long-term debt.

Risk premium: a three to five percentage points.

Its very simple method, but the percent adding is judgmental value, so this method doesn't give precise cost of equity (Weston, Besly and Brigham, 1996, p.578). Some financial analysts use the average rate for the three past methods especially when there is a big difference between them (Brigham and Daves, 2007, p.332).

2.2.3 Cost of Newly Issued Common Equity

Cost of equity come also on a rare form for the newly issued common stocks, or called external equity, and defined as "the cost of external equity, based on the cost of retained earnings, but increased for floatation costs"(Ke). Hence, it is the same as the equation of calculating the cost of retained earnings (DCF) approach, but they subtract the flotation cost from its denominator, so the cost of external equity will be always higher than the cost of retained earnings. Where flotation cost "is the expenses incurred when selling new issues of securities."

Ke = (D1/ (P0 (1-F))) + g

Where:

Ke: is the cost of new equity.

D1: current dividend.

P0: current stock price.

F: is the flotation cost.

g: growth rate (Weston, Besly and Brigham, 1996, p.579-581.

However, there are many reasons that force companies reluctant to issue new shares:

1. Flotation costs can be costly.

2. Investors understand issuing new equity as a negative signal about the price of the company's stock. Therefore, if a company announces to issue new shares, this will push stock price to decline.

3. An increase in the supply of stock will push the stock's price down, forcing the company to sell the new stock at a lower price.

4. The issuing of new equity stocks is necessary only in some cases, such as to finance capital budgeting projects or mergers cases. (Brigham and Daves 2007, p.437)

2.3 Earnings

Earnings or income or profit all these terms or synonyms indicate "the net effects of a business's operations during a given time period (Subramanyam and Wild, 2009, p.81and p.91). And it also the most important item in all financial statement and the most important information

requested by investors, creditors and other parts of market environment (Subramanyam and Wild, 2009, p.91).

Hence: earning or income = operating cash flows + accruals

There are two essential objectives of income:

1. Profitability of firm during a period, i.e. to any boundary the firm able to cover its operating costs and also able to generate satisfactory return for shareholders.
2. Determining the net change on stockholder's wealth , hence positive net income make increase in overall wealth of stockholders, and the negative net income make decrease in overall wealth of stockholders (Subramanyam and Wild, 2009, p.91).

However, there are different perspectives of income:

(1)Economic income: It is the cash flow during the period plus the change in present value of expected future cash flows (holding gain or loss). In other words, it measures the change in shareholder value. It is effective and measuring the financial effects of all events for the period in a comprehensive manner, and it's less useful for forecasting future earnings potential because it's comprise of the realized (cash flows) and unrealized (holding gain or loss) returns (Subramanyam and Wild, 2009, p.92-93).

(2)Permanent income (sustainable or recurring income): "It is the stable average income that a business is expected to earn over its life, given the current state of its business conditions" (Subramanyam and Johan, 2009, p.93). It's a story of long–term sustainable earning power, and we can

calculate the firm value by dividing permanent income by the cost of capital (Subramanyam and Wild, 2009, p.93).

(3)Operating income: "The income that arises from a company's operating activates". It is called also net operating profit after tax (NOPAT), which is different also investing and financing income (Subramanyam and Wild, 2009, p.93).

2.3.1 Earning Management or Manipulation

Shipper (1989) defined earning management as the "purposeful intervention by management in the earnings determination process, usually to satisfy selfish objectives" (Subramanyam and Wild, 2009, p.108). (Giroux, 2004, p.2) define earnings smoothing as "the use of operating and discretionary accounting methods to adjust earnings to a desired outcome".

Earning management can be:

1- Cosmetic: where managers manipulate accruals without any cash flow consequences.

2- Real: where managers take actions with cash flow consequences for purposes of managing earnings (Subramanyam and Wild, 2009, p.108).

Also earnings management has many styles according to the company objectives: Table (2.1) presents earnings management styles according to the company objectives.

Table (2.1): Earnings Management Styles and Company Objectives*

	Conservative	Moderate	Aggressive	Fraud
1.Revenue recognition, products	After sale, delivery, and acceptance	After sale is made	bill and hold	Fraudulent sale
2.Revenue recognition on servisces	Services prepaid and performed	Services prepaid and partially performed	Services agreed to but not yet performed	Fraudulent scheme
3.Inventory	LCM (lower of cost or market) faithfully followed	Slow to write-down slow-moving inventory	Obsolescent inventory still on the books	Sham rebates on purchased inventory; non-existent inventory
4.Asset reserves	Conservative use	Liberal use	Adjusting reserves to meet earnings targets	Releasing large reserve amounts to boost income
5.Accounts receivable	Conservative credit terms and bad debt allowance	Liberal credit terms and bad debts allowance	Liberalizing credit policies to expand sales and reduce bad debts by	Fictitious receivables established to support nonexistent

			ignoring likely defaults	sales
6.Software development	Expensed as incurred	Limited capitalization	Extensive capitalization	Non-software development costs capitalized under this category
7.Depreciation	Conservative useful life and residual value	Liberal useful life and residual value	Restate useful life and residual value upward	Change estimates or principles to meet earnings targets
8.Advertising, marketing	Expensed as incurred	Expensed based on a formula; perhaps sales-based	Marketing costs capitalized	Costs are capitalized and manipulated to meet earnings targets; other costs treated as marketing and capitalized

*Giroux, (2004), p.3

2.3.2 Earning Management Strategies

There are three strategies for earning management: increasing income, big bath, and income smoothing. Managements can use one of these strategies or make combination between them, and that depend on the conditions and policies (Subramanyam and Wild, 2009, p.109).

(1)Increasing Income: This strategy is based on increasing the reported income for several years above its actual numbers, and that to give a brilliant about the company. This happens with aggressive earnings management, and reflected on one-time charge, and recorded below the income from continuing operations line in the income statement (Subramanyam and Wild, 2009, p.109).

(2)Big Bath: This strategy is based on decreasing or reducing the reported income and recording all write-off income from past years. Usually this period characterized by markedly poor performance. This happen usually in recession or when the company has unusual events such as management change, a merger, or a restructuring, and that to reduce the effect of these unusual events (Subramanyam and Wild, 2009, p.109).

(3)Income Smoothing: This strategy is based on increasing or decreasing the reported income to decrease the volatility, by not recording some earnings in good years and record these earnings in special account or reserve accounts called earnings banks, and then record this reserve in bad years. This strategy is very popular and used from much management (Subramanyam and Wild, 2009, p.109).

2.3.3 Motivations for Earnings Management

(1)Contracting Incentives: Bonus given for managements by contracts and any management aims to increase its share of bonus, but there are upper and lower limits control this increase by contracts, there is an upper limit management does not take the bonus after it, and there is a minimum limit management does not take bonus under it. The management increases and decreases the proceeds to cope with these limits and exploitation of the largest possible amount of bonus. Other issue is to meet debt covenants, and this imposes on company to manage the earnings to avoid the failure of meeting the debt and bankruptcy (Subramanyam and Wild, 2009, p.109).

(2)Stock Price Effects: Stock price is an important issue, and management can control this price by increasing and decreasing the earnings. When management want to offer stocks for selling or want to merge with other company, it should increase the earnings, or when management want to beat market expectations, they lower market expectations through pessimistic voluntary disclosures and then manage earnings upward to beat the market (Subramanyam and Wild, 2009, p.109-110).

(3)Other Incentives:

1. Management reduces the earnings to reduce the political costs and scrutiny from government agencies.
2. Management reduces the earnings to earn favors from government such as subsidies.

3. Management reduces the earnings to resist the labor union pressures (Subramanyam and Wild, 2009, p.110).
4. To give image for the external bodies that the risk in firm is small, because the values of earnings is close and regular.
5. To give good information relevant to the prediction of future earnings.
6. "To maintain satisfactory industrial relation".
7. "To minimize taxation".
8. To give a good image for the external bodies that the management has a high efficiency (Foster, 1986, p.228).

2.3.4 Mechanics of Earnings Management

There are two major methods of earnings management, income shifting and classificatory earnings management (Subramanyam and Wild, 2009, p.110).

2.3.4.1 Income Shifting:

"It is the process of managing earnings by moving income from one period to another" (Subramanyam and Wild, 2009, p.110). And it is achieved via two methods either accelerating or delaying the recognition of revenues or expenses. Income shifting uses one period or more to reverses the effect of shifting income so it's useful for income smoothing.

Examples of income shifting include accelerating revenue recognition by persuading merchants to purchase excess products at the end of fiscal year this also called channel loading. Also, "delaying expenses recognition by capitalizing expenses and amortizing them over future periods, such as interest capitalization and capitalization of software development costs."

And, shifting expenses to later periods by adopting certain accounting methods, such as adopting FIFO instead of LIFO and straight-line method instead of accelerated method (Subramanyam and Wild, 2009, p.110-111).

2.3.4.2 Classificatory Earnings Management

Define as “managing earnings by selectively classifying expenses (and revenues) in certain parts of the income statement” (Subramanyam and Wild, 2009, p.111). This method transfers expenses below the line, and report them to unusual and nonrecurring items and reduce their importance.

Examples classificatory earnings management include when management charges additional corporate overhead costs to discontinued segment, so the income will increase to all company, because we shift some expenses to other lines to increase our earnings. Also, use special charges such as asset impairments and restructuring charges periodically and including operating expenses in these charges, and because these charges nonrecurring, so analysts will ignore a part of operating expenses and this will lead to increase the earnings (Subramanyam and Wild, 2009, p.110-111).

2.3.5 Analysis Implications of Earnings Management

Although earnings management process has a lot of motivations and interest, but it's not widespread largely until now. We have to examine the following to make sure that the company applying the earnings management: (Subramanyam and Wild, 2009, p.111).

(1)Incentives for earnings managements: earnings don't manage without availability of motivations for that, and then we should study these motivations (Subramanyam and Wild, 2009, p.111).

(2)Management reputation and history: we should scan carefully the history and the past experience of management, and there is many sources to execute that like audit reports, financial statements, SEC enforcements, and financial press (Subramanyam and Wild, 2009, p.111).

(3)Consistent pattern: there must be consensus of earnings management, between the items, so if we have increased our earnings through net income and decrease it through the methods of inventory valuation on the balance sheet, then there is no consensus in earnings management, thereby the absence of earnings management (Subramanyam and Wild, 2009, p.111).

(4)Earnings management opportunities: the possibility of earnings management depends on the nature of companies activity, hence the financial statements figures for a particular active inaccurate and subject to the judgments, then there is a bigger possibility of using earnings management (Subramanyam and Wild, 2009, p.112).

2.3.6 Evaluation Earnings Quality

Is defined as "the extent of conservatism adopted by the company" (Subramanyam and Wild, 2009, p.112), so the company that have higher earning quality is expected to have a higher price -to- earnings ratio than others with lower earnings quality. Evaluating earnings quality is systematic

process that has a group of steps as following: (Subramanyam and Wild, 2009, p.112).

(1) Identify and assess key accounting policies: it is the first step and urges to identify the most applicable accounting policies in the company, are they aggressive policies or moderate or conservative, do they comply with the norms of the industry in general, what are the results that will be reflected by these policies on the figures recorded in the financial statements (Subramanyam and Wild, 2009, p.112).

(2) Evaluate extent of accounting flexibility: this step assesses the flexibility in preparing financial statements, so that the flexibility of each sector vary according to the extension of intangible assets the volatility of business operations, so that the higher the quality of earnings is the higher the accounting flexibility and the lower the quality of earnings is the lower accounting flexibility (Subramanyam and Wild, 2009, p.112).

(3)Determine the reporting strategy: determine the accounting policy followed in the company, is the company adopting aggressive reporting practices? And does the company have a clean audit report? And has there been a history of accounting problems? And also examine earnings management incentives and the quality of disclosures good disclosure a very important issue Of course, is not a substitute for financial statements that have high precision and quality but reduce some of the gaps in these financial statements and its lack of quality in general (Subramanyam and Wild, 2009, p.112).

(4) Identify and assess red flags: this step let the analysis to beware of red flags; hence red flags "are items that alert analysts to potentially more

serious problems" (Subramanyam and Wild, 2009, p.112-113). Such as reported earnings consistently higher than operating cash flows, unexplained or frequent changes in accounting policies, frequent one-time charges and big baht, suddenly increase in inventories in comparison to sales (Subramanyam and Wild, 2009, p.112-113).

2.4 Cash Flows and Risk

2.4.1 Definitions

Cash flow is simply defined "as the difference between fund received and fund paid-out" (Pandey, 1995, p.395). Or "the cash flow available for distribution to investors. In a nutshell, the relevant cash flow for a project is the additional free cash flow that the company can expect if it implements the project" (Brigham and Daves, 2007, p.437).

The term cash flows have several synonyms, such as free cash flows and net cash flows. Certainly cash flow estimation is a systematic process and it is the most difficult and important step in capital budgeting or in investment analysis, this difficulty comes from the uncertainty of economic business conditions and uncertainty of risk, and if we don't reflect the effect of these conditions, then we will get a bad or biased results. There is no doubt that the process of estimating the cash flows need to distinct time and effort to get accurate results, and that efforts coming from the entire estimation team, led by financial analyst. Hence, financial analyst is the person directly responsible for the process of estimating the cash flows by using information from experts of production costs, sales and marketing in company, and is

responsible for verifying the validity and the accuracy of the information (Pandey, 1995, p.395).

2.4.2 Cash Flows Versus Accounting Profit

It is clear that there is confusion between the two terms: the cash flows and accounting profit. The term accounting profit is due to accounting science and cash flows term closer to finance science. Hence, the change in accounting profit doesn't necessarily mean the change in cash flows and vice versa. We can find a firm that have an increase in accounting profit and at the same time have a shortage of the cash flows. In other words, there are a different in factors that control the change in each of the accounting profit and cash flows. Accounting profit is not the same as the cash flows: accounting profit applied the accrual base which states that revenue is recognized when it is earned, rather than when cash is received, and expense is recognized when it is incurred, rather than when cash is paid. While cash flows applied the cash base which states that revenue is recognized when it is received in cash, rather than when it is earned, and expense is recognized when it is paid in cash, rather than when it incurred.

For calculating accounting profit, it does recognize revenue expenses only and does not recognize the capital expenditures, but cash flows take into account the capital expenditures. Here, we must point out the new difference between cash flows and accounting profit in terms of treatment for capital expenditures. That is where the accounting profit recording the capital expenditure at the account of long-term assets and recognized the annual depreciation expense along the useful life of the asset, i.e. the

accounting profit ignore some of cash flows and take into consideration the non-cash expense. But the cash flows recognize the capital expenditure and not recognize the annual depreciation expense.

The following clarify the difference between accounting profit and cash flows through the equations:

Accounting profit = Revenue – **expense – depreciation**

Cash flows = Revenue – expense – **capital expenditures**

After this comparison, we can say that the cash flows cannot be equal to the accounting profit, hence the accounting profit overstate the cash flows by excluding the capital expenditures and understate the cash flows by including depreciation. So the financial managers and analyst depend on their decisions on cash flows, because if they depend on the accounting profit they will get misleading results. That is because the goal of the management is maximization the shareholder wealth by increasing stock price that come from the present value of all future cash flows and not to maximize the accounting profit. There is also another reason weakens the possibility of using accounting profit for the financial decision-making. The accounting profit can be changed by the accounting policy used. For example, if the company changed the method of pricing inventory in accordance with its accounting policy change, as a result, the accounting profit will change (Pandey, 1995, p.396-397).

2.4.3 Factors Determines Cash Flow Estimation and Components

Important matters that influence the cash flows estimations:

1- Timing of cash flows we should take into consideration the time value of money when we estimate the cash flows (Brigham and Daves, 2007, p.442).
2- Tax and it is role in reducing the free cash flows (Pandey, 1995, p.411).
3- Not taking interest payments into account when estimating the cash flows, and that because it embedded in the weighted average cost of capital, also as to avoid duplication (Brigham and Daves, 2007, p.439).
4- Working capital, hence in most cases, we need to expand the use of working capital, so we need to invest additional funds in increase inventory, account receivable and account payable (Brigham and Daves, 2007, p.438).
5- Depreciation expense: that is makes savings for the firm when tax payment done (Brigham and Daves, 2007, p.442).
6- Incidental effect: that new projects may eat the revenue of existent project, so we should process this issue (Pandey, 1995, p.409).
7- Relevant and irrelevant costs for cash flows estimation, for example:
    - Sunk cost: is historical and irrelevant for cash flows estimation because it is cost obtained and incurred in the past, like R&D cost (Pandey, 1995, p.410).
    - Opportunity cost: is the cost of taking on alternative and Leaves the other, which it relevant for cash flows estimation, thereby if a certain project used an asset that owned by the firm, they

should take in consideration the cost of renting this asset in estimation the cash flows (Pandey, 1995, p.409).

8- Allocated overhead cost: that is incurred with and without the project, so we should ignore this cost from cash flows estimation (Pandey, 1995, p.409).

Typically there are three major components of cash flows:

1. Initial investment: consist of the initial outlay (cost of assets and cost of shipping and installation) plus cost of boost in working capital.
2. Annual net or free cash flows: consist of operating cash flow after deducting tax.
3. Terminal cash flows: consist of recovery the cost of boost working capital and the net salvage value (Pandey, 1995, p.398).

2.5 Risk and Conventional Techniques to Handle Risk

Essentially risk arises in the investment environment because we cannot predict future events hundred percent, and we cannot predict the sequence of economic and non-economic events, as a result, there will be a deviation between prediction and actual results, so this deviation is the risk (Pandey, 1995, p.516-517).

Categories of the events influencing the investment forecasts:

1. General economic condition: this category of events affects the general level of businesses activity, such as government's monetary and fiscal policies, political and social conditions.

2. Industry factors: this category of events may affect all companies in an industry, such as change in material costs.
3. Company factors: this category of events may affect only the company, such as change in management (Pandey, 1995, p.517).
4.

2.5.1 Some of Conventional Techniques to Handle Risk

(1)Payback Period

This method is the easiest and oldest method and it is widespread. This method is based on calculating the time span required for a project to recover the initial cost, so the projects that have the shorter time span are better and less risky than the others projects.

Pros:

1. It is enhance the liquidity, because it is encourages the earliest recovery of cash flow.
2. It is very simple and easy.

Cons:

1- It ignores the time value of money.
2- Don't take in consideration the discount rate (Pandey,1995, p.518-519).

(2)Risk-Adjusted Discount Rate

This technique incorporates the risk premium and the risk free into future cash flows. It incorporates the discount factor to the cash flows, hence risk free rate presents the time preference for money, and the risk premium

presents the risk preference or the riskiness of those future cash flows, and the sum of the time and risk preference (the sum of risk free rate and risk premium) presents the investor's attitude towards risk.

$NPV = \Sigma NCFt / (1+K)^t$

Where:

NCFt: is the net cash flow.

K: is the Risk-adjusted discount rate = Risk-free rate + Risk premium.

t: is the number of years.

Pros:

1. It is simple and easy to understand.
2. It is suitable to reflect the attitude of risk-aversion investors toward risk.

Cons:

1. Don't take any risk adjustment in the numerator for the future forecasted cash flows.
2. It assumes all investors as risk-averse, and this is not true because there is also risk-seeker and risk-neutral (Pandey, 1995, p.519-520).

(3)Certainty Equivalent

It is a technique, which incorporates risk-adjustment for the forecasted net cash flows then discount the cash flows on the risk free-rate.

$NPV = \Sigma at NCFt / (1+Kf)^t$

Where:

NCFt: The forecasts of net cash flow without risk-adjustment.

at: the risk- adjustment factor or the certainty-equivalent coefficient.

Kf: Risk-free rate, assumed to be constant for all periods (Pandey, 1995, p.520-521).

2.5.2 Statistical Techniques to Handle Risk

These techniques used to help the decision makers to take decision under uncertainty, by using mathematical logical technique. (Pandey1995, p.527)

(1)Probability

"It is a measure of someone's option about the likelihood that an event will occur" (Pandey, 1995, p.527). The probability is limited to 0 and 1, hence if the event is certain to obtain its probability is equal to 1, and if the event is uncertain to obtain its probability is equal to 0. A probability distribution is consist of many estimated observations, but in the simple form or business form consists of a few observations, like high and low and best guess estimates, or the optimistic, most likely and pessimistic, then we should describe the accurately degree of confidence for these estimates, we should describe the feelings as to the probability of these estimates occurring (Pandey, 1995, p.527-529).

(2)Expected Net Present Value

After setting the Probability, we should to calculate the expected value or net present value of the cash flows, and it is found by "multiplying the monetary values of the possible events (cash flows) by their probabilities" (Pandey, 1995, p.529).

NCFt = Σ NCFjt*Pjt

Where:

NCFt: Is the net cash flow for j the event in period t.

Pjt: Is the probability of net cash for jth event in period t (Pandey, 1995, p.529-531).

(3)Standard Deviation: An Absolute Measure of Risk

It is defined as "the dispersion of cash flows, i.e., the difference between the possible cash flows that can occur and their expected value" (Pandey, 1995, p.531). The dispersion of cash flow indicates the degree of risk, although the variance is also a commonly measure of risk and it is the square of standard deviation, so variance defines as "a measure of deviation about expected cash flow of each of the possible cash flows. So standard deviation is the square root of the variance, hence the variance is the origin" (Pandey, 1995, p.531-532).

(4)Coefficient of Variation (C.V): A Relative Measure of Risk

It is "a relative measure of risk defined as the standard deviation of the probability distribution divided by its expected value" (Pandey, 1995, p.527).

Coefficient of variation (C.V) = Expected value / Standard Deviation.

It is useful when we comparing two projects with same standard deviations and different expected values, or they have the same expected values with different standard deviations, or different standard deviations and different expected values for the two projects (Pandey, 1995, p.532).

2.5.3 Types of Risk that Affect Cash Flows

Risk of cash flows is uncertainty about a firm's future profitability that is there is a gap or deviation between the amounts of cash flows from period to period, and simply we can measure it by standard deviation of the cash flows. There is a three basically types of risk that affects firm cash flows: stand-alone risk, corporate risk, and market risk.

1. Stand-alone risk: "the risk it exhibits when evaluated alone rather than as part of a combination of assets (a portfolio)—the effect of the project on the other assets of the firm is disregarded." (Weston, Besly and Brigham, 1996, p.537). It is measured by the variability of the asset's expected return. It is the most important risk that affects the cash flows for two reasons:

- Because it is the simplest and easiest type to calculate.

- Because in the case of economy does well the three types of risk have a high correlation, in this case the stand-alone risk is generally a good proxy for difficult measure of corporate and market.

2. Corporate, or within-firm, risk: which is the effect a project has on the total (overall) riskiness of the company, without considering which risk component, systematic and unsystematic, is affected – the effect the project has on the stockholder's own personal diversification is disregarded. It is measured by a project's effect on the firm's earnings variability.
3. Market, or beta, risk: which is project risk assessed from the standpoint of a stockholder who holds a well-diversified portfolio. It is measured by the project's beta coefficient (Weston, Besly and Brigham, 1996, p.537).

2.5.4 Techniques for Measuring Stand-Alone Risk

(1)Sensitivity Analysis

"A risk analysis technique in which key variables are changed and the resulting changes in the NPV and the IRR are observed" (Weston, Besly and Brigham, 1996, p.539). It shows the effect of change on variable such as sales and all other is constant on the net present value or internal rate of return, and this variable should change for several values above and below the expected value, and this shows graphically on sensitivity graph on computer software to help the decision maker to take action about implement the project or delete it. From the slope of one input in sensitivity graph we can know how sensitive net present value is to changes with this

input, hence the steeper line is the more sensitive net present value and the flatter line the less sensitive net present value, if we compare two projects, the one with the steeper sensitivity lines would be riskier (Brigham and Daves, 2007, p.455).

Pros:

1. It is a good technique to get a general idea about the feasibility of the project (Brigham and Daves, 2007, p.455).
2. Reveal erroneous forecasts and bad planning (Pandey, 1995, p.395).
3. Deals with the subject of the break-even point, hence it tells you the maximum limit before it the net present value still positive (Brigham and Daves, 2007, p.455).
4. Give awareness about some dangerous variables (Pandey, 1995, p.395).

Cons:

1. Omits relationships between variables, hence it takes each variable separately and all others variables is fixed, for example sales may be related to prices and cost (Pandey, 1995, p.395).
2. Does not take into account the probability of change in variable, it takes only the percentage change for this variable, so if the variable line is steep but its value is fixed, it does not indicate any problem although the line is steep (Brigham and Daves, 2007, p.455).
3. Doesn’t provide clear or precise results (Pandey, 1995, p.395).

(2)Scenario Analysis

"A risk analysis technique in which bad and good sets of financial circumstances are compares with a most likely, or base case" (Weston, Besly and Brigham, 1996, p.541). It examines several possible situations; begin with the base case by the analyst, and then the engineering and other operations managers' determine the worst and best case with probability for every case (Brigham and Daves, 2007, p.456).

Pros:

1. Most accurate than sensitivity analysis.
2. Take into account the probabilities of change in variables.
3. It takes in consideration the effect of more than one variable in the same time (Brigham and Daves, 2007, p.457).

Cons:

1. There are only three possibilities or three cases for every variable.
2. It assumes perfectly correlated between variables (Brigham and Daves, 2007, p.457).

(3)Monte Carlo Simulation

"A risk analysis technique in which probable future events are simulated on a computer, generating estimated rates of return and risk indexes" (Weston, Besly and Brigham, 1996, p.542). This method combines simulation scenario analysis, so that it is a set of mathematical equations programmed on a computer software and give very accurate results, and it's very complex. It begins with making a probability distribution and assigned it to each variable, after that computer picking a random value for each

variable from its probability distribution, after that those random values entered into the model and net present value and this value stored in the computer memory, and this process is repeated many times, for thousand or more, finally the computer calculate the mean of this net present value and this mean will be the expected present value, and the computer also calculate the slandered deviation of this net present value and this standard deviation will be the measure of risk (Brigham and Daves, 2007, p.458).

Pros:

1. More accurate and powerful method using the probability distribution.
2. It gives range for the net present value and expected net present value and risk measures.
3. It gives good graphs for risk situations (Brigham and Daves, 2007, p.460-462).

Cons:

1. It difficult to understand and use.
2. Because its computer software, so garbage in, garbage out (Brigham and Daves, 2007, p.460-462).

(4)Phased Decisions (Decision Trees)

It's a technique used when the "expenditures do not have to be made all at one time, but, rather, can be made in stages over a period of years" (Brigham and Daves, 2007, p.465). A decision tree "is a graph display of the relationship between a present decision and future events, future events and their consequences, the sequence of events is mapped out over time in a

format similar to the branches of a tree" (Pandey,1995, p.539). This technique is useful in sequential investment decisions (Pandey, 1995, p.539).

2.6 Accounting Accruals

2.6.1 Accrual Concept

Subramanyam and Wild (2009) define accruals as "the sum of accounting adjustments that make net income different from net cash flow."

Where: accruals = Earning or income - operating cash flows.

Accrual accounting aims to "inform users about the consequences of business activates for a company's future cash flows as soon as possible with a reasonable level of certainty." The essence of accruals is the accruals adjustments which adjust cash inflow and cash outflow to yield revenues and expenses, they did after making some estimation and assumption, judgment is an important part of accruals (Subramanyam and Wild, 2009, p.81-82).

2.6.2 Accrual Accounting Reduces Timing and Matching Problems

Intuitively accrual accounting overcomes the two main problems timing and matching while in cash accounting the two problems are existing. Timing problems refer to "cash flows that do not occur contemporaneously with the business activities yielding the cash flows" (Subramanyam and Wild, 2009, p.82). For example sales occurred in the second quarter of the year, but the cash has been received in the fourth quarter from the year. Matching problems refer to "cash inflows and cash outflows that occur from

a business activity but are not matched in time with each other." For example "fees received from consulting that are not linked in time to wages paid to consultants working on the project."

Timing and matching problems appear in the cash accounting for two reasons:

1. Credit transactions do not make immediate transfer of cash and reduce the ability of cash flows to track business activities in a timely manner.
2. Costs paid but its benefits revived after periods, especially if the costs need several years to collect benefits such capital expenditures projects, measuring costs by calculating the cash outflows give a false image about the performance and financial position of the company (Subramanyam and Wild, 2009, p.82-83).

2.6.3 Accrual Process: Revenue Recognition and Expense Matching

There are two essentially principles for accrual accounting:

(1)Revenue Recognition

"Revenues are recognized when both earned and either realized or realizable, revenues are earned when the company delivers its products or services." "Revenues are realized when cash is acquired for products or services delivered, revenues are realizable when the company receives and assets for products or services delivered that is convertible to cash" (Subramanyam and Wild, 2009, p.83). There is difficulty to identify revenues recognition, but usually they recognize at the point of sale, in

addition when the products or services are being equipped, or when they complete or when cash is received (Subramanyam and Wild, 2009, p.83).

(2)Expense Matching

Accrual accounting impose that expenses are matched with their opposite revenues, this matching differ for the two main types of expenses, product cost and period cost, according to the nature of each cost.

Product costs: these costs arise from the production process, such the cost of raw-material and recognized when the product or service is delivered.

Period costs: these costs arise from sales and marketing operations and administration efforts, such as the cost of marketing the product or the service and are matched with revenues when the revenues to which they relate are recognized, but for administrative expenses they are expensed in the period they occur, they don't relate or traced directly to product (Subramanyam and Wild, 2009, p.83).

2.6.4 Types of Accruals: Short and Long-Term Accruals

There are two essential types of accruals as the following:

(1)Short-Term Accruals

"It refers to short-term timing differences between income and cash flow" (Subramanyam and Wild, 2009, p.83). These accruals regard the working capital items and generate it, and also called working capital accruals and appear in balance sheet under current assets and current liabilities, and it came essentially from inventories and credit transactions,

and then affects all types of receivables and payables such as prepaid expenses, advances received. The accounting for this type is more simplex than that for the long-term accruals, with regard to cash flow implications for short-term are more direct and readily determinable, and short-term accruals more useful in company valuation (Subramanyam and Wild, 2009, p.83-84).

(2)Long-Term Accruals

It came essentially from capitalization, which "is the process of deferring costs incurred in the current period whose benefits are expected in future periods" (Subramanyam and Wild, 2009, p.83). The capitalization generates long-term assets like plant and goodwill, and the cost of these assets allocated over their benefit periods and forms a large part of long-term accruals which is the depreciation and amortization. The accounting for this type is more complex and subjective than that for the short-term accruals, with regard to cash flow implications for long-term are hard and hard for determining (Subramanyam and Wild, 2009, p.83-84).

2.6.5 Relevance of Accrual Accounting

(1)Conceptual Relevance of Accrual Accounting

Accrual accounting beats cash flows and this is because the income statement and balance sheet for the accrual accounting is more relevance to measure a company's present and future cash- generating capacity (Subramanyam and Wild, 2009, p.84).

(2)Relevance of Short-Term Accruals

Improve the relevance of accounting by helping record revenues when earned and expenses when incurred, these accrual give better results when we analyze the profitability and current assets and liabilities, and give better image about the financial position (Subramanyam and Wild, 2009, p.84).

(3)Relevance of Long-Term Accruals

The investment in long-term operating assets make problems for free cash flow such as, the infrequent of this investment encourage the volatility in free cash flow, and the large amount of it make that also, also free cash flow treats capital growth and capital replacement synonymously, so all capital expenditures reduce the free cash flow (Subramanyam and Wild, 2009, p.84).

(4)Financial Performance

Revenue Recognition and matching expense are giving income greater than the income in the case of cash flow especially in the case of financial performance evaluation and that because the principle of revenue recognition injects all revenues that belong current period, and does not leave any of them, and the principle of matching expense takes the expenses which relate to the revenues and does not take excessive expenses do not belong revenues (Subramanyam and Wild, 2009, p.85).

(5)Financial Condition

Accrual accounting is better and gives more accurate balance sheet, and shows the level of resources that available to company (Subramanyam and Wild, 2009, p.85).

(6)Predicting Future Cash Flows

Accrual accounting is better in predicting future cash flows than the current cash flow for two reasons: (Subramanyam and Wild, 2009, p.85)

1. Revenue recognition reflects future cash flow consequences.
2. Matching process better in aligns inflow and outflow over the time (Subramanyam and Wild, 2009, 1995, p.85).

2.7 Myths and Truths about Accruals and Cash Flows

2.7.1 Accruals and Cash Flows :Myth

1. Myth: company value depends on future cash flows, only current cash flows are relevant for valuation, and there is no need to link current cash flows with future cash flows.
2. Myth: All accrual accounting adjustments are value irrelevant, its true in the case of cosmetic accounting adjustments; on the contrary the main goal for the accrual accounting is to make adjustments for the transactions.
3. Myth: cash flows can't be manipulated; this is not true because easier to manipulate cash flow rather than manipulating income.
4. Myth: all income is manipulated.
5. Myth: it is impossible to consistently manage income upward in the long run (Subramanyam and Wild, 2009, p.88-90).

2.7.2 Accruals and Cash Flows: Truths

1. Truth: accrual accounting (income) is more relevant than cash flow in measuring the performance and the financial position and evaluation, this truth doesn't hurt the other truth that future cash flow is more relevant than current cash flow.
2. Truth: cash flows are more reliable than accruals, and they play important complementary role with accruals, but there is untrue statement states that "cash flows can't be manipulated" because cash flows are very volatile and more than income.
3. Truth: accrual accounting numbers are subject to accounting distortion; the existence of earnings management decreases the consistency and comparability of accrual accounting numbers.
4. Truth: company value can be determined by using accrual accounting, there is a common mistake states that company value calculated only by discounting cash flows (Subramanyam and Wild, 2009, p.90-91).

Chapter Three

Literature Review

3.1 Introduction

Cost of equity and cash flow and accrual components of earnings is one of the most attractive subjects to investigate in the financial management field. However the literature on cost of equity is few while the majority studies focus on cash flow and earnings and there interaction relations in an isolation manner of cost of equity.

This chapter contains literature review for five subtopics, (3.2) cost of equity and earnings literature, (3.3) cost of equity and others, (3.4) cash flow and earnings literature, (3.5) accruals and earnings literature, (3.6) some reasons that distinguish this study from others.

3.2 Cost of Equity and Earnings Literature

Nekrasov (2012) examines if risk in cash flow and accrual components of earnings, and risk in earnings are an important determinants of a firm's cost of equity, and what is the most important determinant of them. Also, examines the ability of these components to capture firm risk in the case of smoothing. The sample consists of U.S. firms covers 27 years from 1980 to 2006. He concludes that risk in earnings is a good determinant for firm's cost of equity, also finds that risk in cash flow and accrual components of earnings is an important determinant of a firm's cost of equity beyond risk in earnings. And finds the risk in cash flow and accrual components of earnings is a good tool to capture the firm risk in case of earnings smoothing. Then concludes that risk in cash flows (accruals) decreases (increases) in the length of the operating cash cycle and increases

(decreases) in the profit margin. Finally he finds that valuation errors based on risk in earnings components are significantly lower than those based on risk in aggregate earnings for the average firms.

Easton (2003) examines a model of earnings and earnings growth and demonstrates how this model may be used to obtain estimates of the expected rate of return on equity capital. These estimates are compared with estimates of the expected rate of return implied by commonly used. By isolating the respective roles of (1) forecasts of next period's accounting earnings, (2) forecasts of accounting earnings two periods ahead, and (3) expected accounting earnings beyond the two-year forecast horizon, shows how the difference between accounting earnings and economic earnings characterizes the role of accounting earnings in valuation. Then he compared of estimates of the expected rate of return. He finds market prices imply that the market expects abnormal growth in earnings to change at an average rate of 2.9% per year beyond the two-year forecast horizon. Also the expected rate of return based on the PEG ratio are, on average, 1.7% lower than the estimates that take this growth into account. Finally, the general downward bias in the estimate of the expected rate of return based on the PEG ratio is shown to be higher for firms with higher PE.

Francis et al. (2003) examine the relation between the cost of equity capital and seven attributes of earnings: quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism. The sample covers the 27-year period, (1975-2001) for American companies. They prepared cross-sectional tests using the quarterly value line-based ex-ante cost of equity estimates, control variables and earnings attributes. They prepare firm-specific time-series tests to investigate the effects of earnings

attributes on equity costs of capital. Then they present an exploratory analysis which attempts to separate the two influences on the cost of equity capital. The results show that the accounting-based earnings attributes (quality, persistence, predictability and smoothness) dominate the market-based attributes (value relevance, timeliness and conservatism). Also, in cross-sectional tests, both earnings quality and earnings persistence have strong conditional effects on the cost of equity capital, as does the market-based attribute value relevance. While in time-series tests, only the two accounting-based attributes, quality and persistence, have significant conditional effects. Finally, they find conditional negative effects for predictability in both the cross-sectional and time-series specifications, and for all three market-based attributes in the time-series specification.

Botosan and Plumlee. (2000) examine the association between expected cost of equity capital and three types of disclosure (annual report, quarterly and other published reports and investor relations). Sample included in the dated from 1985/1986 through 1995/1996. They estimate the cost of equity by regressing it on 3 factors market beta, natural log of market value and fractional total disclosure rank. The result of examining the effect of total disclosure on the cost of equity capital revealed a reverse result of the older expectations where the greater total disclosure is associated with a higher cost of equity capital. And there is no association between the level of investor relations activities and cost of equity capital. Finally they should disaggregate the different types of disclosure to have correct results otherwise they will have wrong results.

3.3 Cost of Equity and Others

Chen et al. (2011) examine the effect of shareholder rights on reducing the cost of equity and the impact of agency problems from free cash flow (FCF) on this effect. They prepared a Governance Index ("G-index") constructed by Gompers, Ishii, and Metric (GIM) (2003) for 1990, 1993, 1995, and 1998, and for 2000, 2002, and 2004. The sample consists of 13,140 firm-year observations (2,161 firms) across the 44 industries. They estimate the cost of equity that is implied in current stock prices and analysts' earnings forecasts based on four models. They find that anti-takeover provisions were significantly positively related to the cost of equity, and that the association is more pronounced among firms with more severe agency problems from FCFs. They suggest that the positive relation between shareholder rights and firm valuation was driven not only by the cash flow (or numerator) effect but also by the discount rate (or denominator) effect. This study is subject to substantial measurement errors (Easton and Monahan (2005)), because it relies on imperfect analyst earnings forecasts and simplified assumptions about forecasts beyond explicit forecast horizons.

Chen et al. (2003) examine the effects of disclosure and other corporate governance mechanisms on the cost of equity capital in Asia's emerging markets. The final sample includes 545 firm-year observations from 25 emerging markets. The study estimates the ex-ante cost of equity capital from the residual income valuation model (Ohlson 1995). It finds that both disclosure and non-disclosure corporate governance mechanisms have a significantly negative effect on the cost of equity capital. There is an important link between corporate governance at both the firm level and the

country level and the cost of capital. Also, the negative association between disclosure and the cost of equity capital is weaker when non-disclosure governance mechanisms are included in the regressions. In other words, the negative effect of non-disclosure governance mechanisms is greater than the negative effect of disclosure. It shows a negative correlation between disclosure and the cost of equity capital and it is weaker after controlling for other corporate governance mechanisms. Finally in emerging markets where the infrastructure factors, such as the legal protection of investors, are lacking, the role of disclosure in reducing the cost of equity capital is not as important as other non-disclosure.

3.4 Cash Flow and Earnings Literature

Cheng et al. (2012) examine the relation between predictability of the future cash flow and earnings management in China using the analytical framework of random-walk sales and the associated accruals. They use the period (1998-2009), Initially they used Geary (1967) model to measure the predictability of the future cash flow by the R square estimated for the regression model, then they used Barth et al. (2001) as a benchmark to investigate the earnings management, that enabled them to compare between China and the United States in predictability of the future cash flow. The results revealed that current earnings are the most important variable in predicting future cash flow which might imply that earnings management in China was more severe than in the United States. Also, they find that lower levels of accruals are associated with higher values of R square. Finally, they conclude that the majority of companies (approximately 90%) limit their sales or earnings management within the range of 100% of the original level.

The second most frequent management strategy (approximately 40%) restricts the range between 50% and 100% of the original level.

Das et al. (2012) examine whether the association between CEO cash bonus and earnings smoothing also can be explained by efficient contracting in which CEOs are compensated for their effort to smooth the earnings stream. The study uses the period (1992-2006). They examine whether the association between CEO cash bonus and earnings smoothing by a regression equation consist of dependent variable that is the natural log of CEO bonus plus one (Bonus), and three independent variables that represent proxies for smoothing They find a positive and significant association between CEO bonus and earnings smoothing. The increase is larger when the firm's cash flow volatility is higher that when CEO bonus on average increases with earnings smoothing. Also, they find that although CEO cash bonus is lower when cash flow volatility is higher. The sensitivity of CEO bonus to earnings smoothing is significantly larger when cash flow volatility is higher, and also holding firm performance, size and all other control variables at their mean values, an increase in the smoothing measure from the 25th percentile to the 75th percentile is associated with an increase of about $119,000 in CEO cash bonus. Finally, they find that the sensitivity of CEO bonus to earnings smoothing is significantly larger when smoothing involves earnings-decreasing discretionary accruals (under-reporting) than when it involves earnings-increasing discretionary accruals (over-reporting).

Trabelsi (2011) examines the value-relevance of three performance measures: earnings, cash flows from operations and funds flows from operations the study uses the period (1996-2009). He investigates whether accounting earnings and two cash measures of the firm performance,

specifically cash flows from operations and funds flow from operations have information content for security prices, and examined whether accounting earnings and these cash measures of performance convey incremental information content beyond each other. The results are consistent with significant incremental information content for earnings after controlling for the information conveyed by either cash flows from operations (CFO) and funds flow from operations (FFO), and with CFO but not FFO having incremental information content beyond earnings. The results can't confirm the persistence hypothesis. However, stock prices were shown to act as if investors give more weight to the permanent component of earnings than to the transitory one that is expected to revert actual earnings to the mean in the next periods.

Jayaraman (2008) investigates whether earnings that are smoother or more volatile than cash flows—and income smoothing and big baths provide or garble information. The study develops two distinct samples, the first is SPREAD sample and the second is PIN sample. It uses bid-ask spreads and the probability of informed trading as proxies for informed trading, then calculates the (ACEV) which is the difference between the volatility of earnings and the volatility of cash flows as the accrual component of earnings volatility. The study finds that bid-ask spreads and the probability of informed trading are higher both when earnings are smoother than cash flows and also when earnings are more volatile than cash flows. He also finds that informed trading is attenuated in settings in which theory suggests that discretionary smoothing or volatizing of earnings is likely to be informative. These results suggest that earnings that are smoother or more volatile than cash flows garble information and thus attract informed traders. Also, the higher levels of informed trading are associated with more

negative values of the accrual component (earnings smoother than cash flows). Further, higher informed trading is also associated with more positive values of the accrual component (earnings more volatile than cash flows).

Watson et al. (2005) examine the association of various earnings and cash flow based measures of firm performance with stock returns to determine the measure(s) that best capture contemporary firm performance. The sample covers the period between 1992 and 1993. The sample consists of 6,275 firm-year observations. They test if there is a stronger contemporary relation between stock returns and earnings measures of firm performance relative to cash flow measures of firm performance. They find that profit making firms earnings measures, expenses and abnormal items are more informative of firm performance than cash flow measures, and also there is little difference in the relevance of the various earnings based performance measures. Finally the relevance of accruals is conditional on their magnitude and whether they are income increasing or decreasing.

Barth et al. (1999) Provide insights into the characteristics of the accrual and cash flow components of earnings that affect their relation with firm value. They achieve the objective by utilizing the framework in Ohlson (1999). The study covers the period between 1987 and 1996. They find that for all industries, accruals and cash flows each have significant explanatory power in forecasting future abnormal earnings incremental to abnormal earnings. They also find that accruals and cash flows have forecasting relevance in that each has a significant relation with future abnormal earnings. And they show that for all industries, as predicted, accruals and cash flows each have significant incremental explanatory power in the

relations between market value of equity and equity book value, abnormal earnings, and each earnings component. Finally, they find that the correlations between the estimated component valuation coefficients and those calculated from the abnormal earnings and component autoregressive equations and implied by the Ohlson model are not consistently positive.

3.5 Accruals and Earnings Literature

Thi et al. (2012) examine the role of the accrual process for providing value relevant information on intangibles. They explain the source of the additional explanatory power of earnings when R&D is capitalized compared to an expensing system. The study uses the period (2001-2006) on a sample consists of 150 German firms listed in German stock markets. They find that capitalizing R&D, accrual information is generated which is more informative than the cash information associated with expensed R&D. Also, they find that by disaggregating earnings into cash flows and its major accrual components, they demonstrated higher market value explanatory power of disaggregated earnings. And find that accruals contributed specially to an improved reflection of earnings for firm performance, and that R&D capitalization captured publicly available information and internalizes it into the accounting, that the information in accrual accounting is more useful in explaining market values than leaving the information as based on the findings of the previous accrual literature.

Core et al. (2007) examine if accruals quality (AQ) is a priced risk factor by using Francis, LaFond, Olsson, and Schipper (2005) (FLOS model) they examined a contemporaneous relation between excess returns and factor returns. This study uses the period (1970-2001), during the period a

sample contains 91,280 firm-year observations using monthly return to every fiscal year. The results show no evidence that AQ is a priced risk factor, hence AQ is not a priced factor since it does not carry a positive risk premium with respect to returns, and that FLOS' AQ factor generates a mean annual risk premium of about 3%, which is not statistically different from zero, and there is no evidence that AQ as a characteristic predicts future excess returns. The AQ hedge portfolio strategy does not earn positive returns during the full 1971 to 2001 period, although they find significantly positive hedge returns in the January 1985 to November 2001 sub-period used by Aboody et al. (2005).

Barth et al. (2001) investigate the role of accruals in predicting future cash flows and the ability to generate cash flow affects the values of its securities. The sample covers the 10-year period, (1987-1996) for American companies. They use the model of Dechow, Kothari, and Watts (1998), (DKW) to develop predictions about the role of accruals in predicting future cash flows. The empirical tests focus on annual amounts and disaggregate accruals into six major components. They find that disaggregating earnings into cash flow and six major accrual components significantly enhances the predictive ability of earnings. And long-term accruals, specifically depreciation of long-lived tangible assets and amortization of intangible 31 assets, have significant predictive ability for future cash flows. They also find that the explanatory power of disaggregated current earnings exceeds that of current and up to six lags of aggregate earnings. Finally disaggregating cash flow from aggregate accruals significantly increases predictive ability relative to aggregate earnings, but disaggregating accruals into its major components further significantly increases predictive ability.

3.6 Some Reasons that Distinguish this Study from Others.

3.7There are three reasons make my study distinguish:

1. This study is the first study beyond Nekrasov (2012) to explicitly model and test the role of accruals and cash flows in explaining a firm's cost of equity capital beyond that explained by aggregate earnings.
2. This study is the first study beyond Nekrasov (2012) shows how characteristics of the earnings generating process – operating cycle and profit margin – affect the linkage between the cost of equity and risk in accruals and cash flows.
3. This study is the first study beyond Nekrasov (2012) shows the limitation of risk in earnings to capture firm risk with high earnings smoothness, and shows the distinguish role of risk in earnings components in capturing firm risk.

Chapter Four

Data and Methodology

4.1 Introduction

The main objective for this study is to examine the risk in cash flow and accrual components of earnings and it is importance in determining of a firm's cost of equity. Therefore, it examines the fundamental sources of risk by looking at earnings components risk. In addition, it examines the earnings smoothing and it is ability to capture firm's risk, especially when the firm exhibits high earnings smoothness. As well as how cash flows and accruals can be used to unravel the effect of smoothing in estimating firm risk, and the effect of operating cash cycle and profit margin on the relation between cost of equity and risk in cash flows and accruals.

This chapter contains five subjects, (4.2) the population, (4.3) the sample of the study, (4.4) the data of the study, (4.5) the methodology used in the study in order to achieve results, defines the main variables and how it could be measured, indicates the research instrument, and the model used in this study, finally (4.6) shows the hypotheses of the study.

4.2 The Population

The population of the study consists of all Jordanian companies listed in Amman Stock Exchange (ASE), during the period 2000-2010, the total number of companies listed in ASE is amounted to 273 at the end of 2010, so companies are distributed into three main sectors:

Financial sector, services sector, and industrial sector.

4.3 The Sample

The sample of this study is selected from industrial and services companies during the period 2000 to 2010, using the following sample criteria:

1. The study excluded the financial sector from the sample because it has privacy, and has special measures in the area of risk measurements.
2. The selected companies in the sample should be listed on the ASE during the period of 2000 to 2010.
3. The study excluded companies that were incorporated after 2000 from the sample.
4. Companies with insufficient data for in a year were excluded from the sample companies in that year.
5. The study excluded companied that were acquired by another company or merged with another company.
6. The study excluded companies that were liquidated either voluntary or obligatory.

   The application of the criteria result in 80 companies, and that is enough to get a good results.

According to these criteria, table (4.1) presents the distribution of the sample companies.

Table (4.1) Sample Structure

Sectors	Number of Companies in the Sample	Percentage of total in sample
Services Sector	32	40%
Industrial Sector	49	60%
Total	**81**	**100%**

Source: The researcher

4.4 The Data

An eleven-year panel data set is compiled out from the financial statements of the sample companies during the period 2000 and 2010.

The data is obtained from the Jordanian companies guides that are published by ASE.

The information about the subject of the study was collected from literature survey, books, articles, and from other references that are related to the subject of the study.

4.5 Variables Definitions and Measurement

4.5.1 Dependent Variables

There are two dependent variables in this study as follow:

1. **Cost of equity**

Calculated by Discounted Cash Flow (DCF) Approach:

$Ks = (D1/P0) + g$

Where:

Ks: The cost of equity.

D1: Expected dividend, $D1=D0\ (1+g)$.

D0: Past dividend.

P0: Current stock price.

g: Growth rate

2. **Implied cost of equity**

Calculated by the PEG-ratio approach, the implied cost of equity is used as proxy for the firm risk.

The implied cost of equity using the PEG-ratio approach that used it for the rest equations is estimated as:

$r_{j,t} = \sqrt{((E3_{j,t}-E2_{j,t})/(P0_{j,t}))}$

Where:

$r_{j,t}$: The implied cost of equity for firm (j) at year (t).

E3: Earning per share of year 3 for firm (j) at year (t).

E2: Earning per share of year 2 for firm (j) at year (t).

$P0_{j,t}$: Current stock price for firm (j) at year (t).

$(E3-E2)$ must be > 1.

4.5.2 Independent Variables

The independent variables are:

1. Risk in earnings

Earnings ($E_{j,t}$): are measured as the firm net income, for firm (j) at year (t).risk in earnings is the standard deviation of earnings.

2. Risk in operating cash flows

Operating cash flows ($CFO_{j,t}$): are measured as the cash flow from firm operation, for firm (j) at year (t).and it is the standard deviation of operating cash flow.

3. Risk in accruals

Accruals ($A_{j,t}$): are earnings minus operating cash flows, for firm (j) at year (t), and it is the standard deviation of accruals.

4. Risk in smoothed earnings

$E_{j,t}$: Smoothed earnings, for firm (j) at year (t).

$E_{j,t}=\pi_{j,t}*S_{j,t}$

Where:

$\pi_{j,t}$: The profit margin, for firm (j) at year (t), Profit margin ($\pi_{j,t}$): is the ratio of earnings to sales, for firm (j) at year (t).

$S_{j,t}$: The sales, for firm (j) at year (t).

5. Risk in smoothed operating cash flows

$CFOs_{j,t}$: Smoothed operating cash flow, for firm (j) at year (t).

$CFOs_{j,t} = Es_{j,t} – As_{j,t}$

$CFOs_{j,t} = Es_{j,t} – (\Delta AR_{j,t} + \Delta Inv_{j,t} – \Delta AP_{j,t})$

6. Risk in the change of accounts receivable

ΔAR: Is the change in accounts receivable.

$\Delta AR_{j,t} = \alpha_{j,t} * S_{j,t}$

Where:

$\alpha_{j,t}$: Constant portion of sales in receivables, for firm (j) at year (t).

$S_{j,t}$: Annual sales, for firm (j) at year (t).

$\alpha_{j,t}$: Is the proportion of sales (S) in receivables (AR) estimated as:

$((AR_{j,t} + AR_{j,t_(_1)}))/ 2*S_{j,t}$

$S_{j,t}$: Annual sales, for firm (j) at year (t).

7. Risk in the change of inventory

ΔInv: is the change in inventory.

$\Delta Inv_{j,t} = \gamma_{j,t}(1-\pi_{j,t})*S_{j,t}$

Where:

$\Delta Inv_{j,t}$: Change in inventory, for firm (j) at year (t).

$\gamma_{j,t}$: is the proportion of cost of goods sold in inventory (Inv) estimated as:

$\beta_{j,t}$: is the proportion of accounts payable (AP) to cost of goods sold estimated as:

$(((AP_{j,t}+AP_{j,t_(_1)}))/2)*(1-\pi_{j,t})*S_{j,t}$

8. Risk in the change of accounts payable

ΔAP: is the change in accounts payable.

$\Delta AP_{j,t}=\beta_{j,t}[(1-\pi_{j,t})*S_{j,t}+\gamma_{j,t}(1-\pi_{j,t})(S_{j,t}-S_{j,t_(_1)})]+eAP_{j,t}$

Where:

$\Delta AP_{j,t}$: The change in accounts payable, for firm (j) at year (t).

$\beta_{j,t}$: Constant proportion of purchases and purchases equals the cost of goods sold plus change in inventory, for firm (j) at year (t). $\beta_{j,t}$: is the proportion of accounts payable (A□) to cost of goods sold estimated as:

$$\frac{((AP_{j,t} + AP_{j,t_{(1}}))}{2} * (1 - \pi_{j,t}) * S_{j,t}$$

$(S_{j,t} - S_{j,□_{(1}})$: Sales of current year minus sales of the year before, for firm (j) at year (t).

$eAP_{□,t}$: Error term for the change of accounts payable.

9. Relation between risks in operating cash flow and operating cash cycle

10. Relation between risks in operating cash flow and profit margin, 11. Relation between risks in accruals and operating cash cycle

11. Relation between risks in accruals and profit margin.

4.6 Empirical models specification

The current study uses 4 models to accomplish the study objectives, all models are tested using panel data analysis

4.6.1 Regressions of cost of equity on risk in earnings:

$re_{j,t} = a0 + a1\sigma(E_{j,t}) + e_{j,t}$………………..(1)

Where:

$re_{j,t}$: The cost of equity for firm (j) at year (t), that I will use it only in the first equation with earnings risk.

a0: The intercept.

a1: The coefficient of risk in earnings.

$\sigma(E_{j,t})$: The risk in earnings, for firm (j) at year (t).

$e_{j,t}$: Error term.

4.6.2 Regressions of the implied cost of equity on risk in earnings, cash flows, accruals without smoothing:

$r_{j,t} = b0 + b1\sigma(E_{j,t}) + b2\sigma(CFO_{j,t}) + b3\sigma(A_{j,t}) + e_{j,t}$…………(2)

Where:

$r_{j,t}$: is the implied cost of equity, for firm (j) at year (t), using the PEG-ratio approach.

b0: The intercept.

b1: The coefficient of risk in earnings.

$\sigma(E_{j,t})$: The risk in earnings, for firm (j) at year (t), which is the standard deviation of earnings.

b2: The coefficient of risk in operating cash flow.

$\sigma(CFO_{j,t})$: The risk in operating cash flow, for firm (j) at year (t), which is the standard deviation of operating cash flow.

b3: The coefficient of risk in accruals.

$\sigma(A_{j,t})$: The risk in accruals, for firm (j) at year (t), which is the standard deviation of accruals.

$e_{j,t}$: Error term.

4.6.3 Cross-sectional regressions of the implied cost of equity on risk in earnings, cash flows, accruals, and accrual components in the case of smoothing:

$r_{j,t} = c_0 + c_1\sigma(Es_{j,t}) + c_2\sigma(CFOs_{j,t}) + c_3\sigma(\Delta AR_{j,t}) + c_4\sigma(\Delta Inv_{j,t}) + c_5\sigma(AP_{j,t}) + e_{j,t}$…………(3)

$r_{j,t}$: The implied cost of capital, for firm (j) at year (t), using the PEG-ratio approach.

c0: The intercept.

c1: Coefficient of smoothed earnings.

$\sigma(E_{j,t})$: Risk in smoothed earnings, for firm (j) at year (t), which is the standard deviation of smoothed earnings.

c2: Coefficient of smoothed operating cash flow.

$\sigma(CFOs_{j,t})$: Risk in smoothed operating cash flow, for firm (j) at year (t), which is the standard deviation of smoothed operating cash flow.

c3: Coefficient of change in accounts receivable.

$\sigma(\Delta AR\ j,t)$: Risk in change in accounts receivable, for firm (j) at year (t), which is the standard deviation of change in the accounts receivable.

c4: Coefficient of change in inventory.

$\sigma(\Delta Inv\ j,t)$: Risk in change in inventory, for firm (j) at year (t), which is the standard deviation of change in inventory.

c5: Coefficient of change in the accounts payable.

$\sigma(APj,t)$: Risk in change in accounts payable, for firm (j) at year (t), which is the standard deviation of change in accounts payable.

ej,t: Error term.

4.6.4 The effect of operating cash cycle and profit margin on the relation between cost of equity and risk in cash flows and accruals:

$$rj,t = d0 + d1\sigma(CFOj,t) + d2\delta j,t\sigma(CFOj,t) + d3\pi j,t\sigma(CFOj,t) + d4\sigma(Aj,t) + d5\delta j,t\sigma(Aj,t) + d6\pi j,t\sigma(Aj,t) + ej,t \quad \text{……..(4)}$$

Where:

d0: Is the intercept.

d2: Coefficient of the relation between risks in operating cash flow and operating cash cycle.

$\delta j,t$: Operating cash cycle, for firm (j) at year (t).

d3: Coefficient of the relation between risks in operating cash flow and profit margin.

d5: Coefficient of the relation between risks in accruals and operating cash cycle.

d6: Coefficient of the relation between risks in accruals and profit margin.

ej,t: Error term.

4.7 Hypotheses of the Study

The study will test the following hypotheses:

Hypothesis (1)

There is a statistical significant relationship between cost of equity and risk in earnings.

Hypothesis (2)

There is a statistical significant relationship between implied cost of equity and risk in earnings.

Hypothesis (3)

There is a statistical significant relationship between implied cost of equity and risk in operating cash flow.

Hypothesis (4)

There is a statistical significant relationship between implied cost of equity and risk in accruals.

Hypothesis (5)

There is a statistical significant relationship between implied cost of equity and risk in smoothed earnings.

Hypothesis (6)

There is a statistical significant relationship between implied cost of equity and risk in smoothed operating cash flow

Hypothesis (7)

There is a statistical significant relationship between implied cost of equity and risk in change in accounts receivable.

Hypothesis (8)

There is a statistical significant relationship between implied cost of equity and risk in change in inventory.

Hypothesis (9)

There is a statistical significant relationship between implied cost of equity and risk in change in accounts payable.

Hypothesis (10)

There is a statistical significant relationship between risk in operating cash flow and the length of the operating cash cycle.

Hypothesis (11)

There is a statistical significant relationship between risk in accruals and the length of the operating cash cycle.

Hypothesis (12)

There is a statistical significant relationship between risk in operating cash flow and profit margin.

Hypothesis (13)

There is a statistical significant relationship between risk in accruals and profit margin.

Chapter Five
Data Analysis
Results and Conclusions

5.1 Introduction

Data analysis a process of gathering, modeling, and transforming data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making.

In this chapter, the researcher introduces all the results and analysis in order to demonstrate the relationship of each independent variable with the dependent variable and their impact through the statistical analysis used in this study to reach the desired objectives.

5.2 Descriptive Statistics

The study uses mean, standard deviation, minimum, and maximum, of the data used for the sample during the study period (2000-2010).Table (5-1) provides a descriptive statistics for the whole sample variables which is represented as follows:

Table 5.1: Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
Risk in Earnings	-3.37	4.62	0.65	1.40
Risk in Cash Flow	-29.21	29.62	0.82	2.62
Risk in	-6.46	3.39	-0.46	1.30

Accruals				
Risk in Smoothed Earnings	-2.84	5.64	0.72	1.40
Risk in change in AR	0.00	27.18	1.25	2.09
Risk in change in INV	0.00	5.84	0.93	1.06
Risk in change in AP	-2.88	3.15	0.27	0.96
Risk in Smoothed Cash Flow	-3.29	8.70	0.21	1.05
Relation between risks in Operating Cash Flow and Operating Cash Cycle	-5.45	9.05	-3.96	4.42
Relation between Risks in Operating Cash Flow and Profit Margin	-38.38	184.05	-137.11	231.58
Relation between Risks in Accruals and Operating Cash Cycle	-1.36	5.21	15.48	5.90
Relation between Risks in Accruals and Profit Margin	-246.21	251.11	743.76	1738.62

Table (5-1) shows that the mean value of risk in earnings was (0.65), and standard deviation of (1.40), the maximum value was (4.62) and the minimum value was (-3.37). The mean value of risk in operating cash flow was (0.82), and standard deviation of (2.62), the maximum value was (29.62) and the minimum value was (-29.21). The mean value of risk in accruals was (-0.46), and standard deviation of (1.30), the maximum value was (3.39) and the minimum value was (-6.46). The mean value of risk in smoothed earnings was (0.72), and standard deviation of (1.40), the maximum value was (5.64) and the minimum value was (-2.84). The mean value of risk in change in accounts receivable was (1.25), and standard deviation of (2.09), the maximum value was (27.18) and the minimum value was (0). The mean value of risk in change in inventory was (1.25), and standard deviation of (2.09), the maximum value was (5.84) and the minimum value was (0). The mean value of risk in change in accounts payable was (0.27), and standard deviation of (0.96), the maximum value was (3.15) and the minimum value was (-2.88). The mean value of relation between risk in operating cash flow and operating cash cycle was (-3.96), and standard deviation of (4.42), the maximum value was (9.05) and the minimum value was (-5.45). The mean value of relation between risks in operating cash flow and profit margin was (-137.11), and standard deviation of (231.58), the maximum value was (184.05) and the minimum value was (-38.38). The mean value of relation between risks in accruals and operating cash cycle was (15.84), and standard deviation of (5.90), the maximum value (5.21) and the minimum value was (-1.36). The mean value of relation between risks in accruals and profit margin was (743.76), and standard

deviation of (1738.62), the maximum value (251.11) and the minimum value was (-246.21).

5.3 Empirical Results and Analysis

This section presents the estimation results of the study models using the panel data analysis that can be estimated either by fixed or random effect models

5.3.1 Model (1): Regressions of cost of equity on risk in earnings

$re_{j,t} = \beta_0 + \beta_1\sigma(E_{j,t}) + e_{j,t}$

Table 5.2: OLS using fixed and random effects model 1

	Fixed Effect Model		**Random Effect Model**	
Constant	**-0.1851135**		**-0.1871184**	
Risk of Earnings (σE)	**0.0771402**		**0.0799547**	
	T	**3.12**	**Z**	**3.31**
	P (t)	**0.002**	**P (Z)**	**0.001**
R	**0.0181**		**0.0181**	
F-Statistic	**9.75**		**10.95**	
Observations (n)	**658**		**658**	
Hausman test	**0.30** (**.5828**)			

The results presented in table 5.2, shows that he random effect-model will be the best specification for testing model 1.

The insignificant Husman test suggest that random effect model presents efficient results, where the value of chi is find to be (0.30) with a p-value of (0.5828).

The coefficient (0.0799547) and it is found to be positive and statistically significant at 1% level, indicated to a positive impact of risk in earnings on the cost of equity, hence, we accept the hypothesis that there is a statistical significant relationship between cost of equity and risk in earnings.

This findings support the finding of Easton (2003) and Nekrasov (2012) who provide evidence suggesting that risk in earnings and cost of equity has positive relationship and statistically significant.

5.3.2 Model (2): Regressions of the implied cost of equity on risk in earnings, cash flows, accruals without smoothing

$rj,t = \beta0 + \beta1\sigma(Ej,t) + \beta2\sigma(CFOj,t) + \beta3\sigma(Aj,t) + ej,t$

Table 5.3: OLS using fixed and random effects model 2

	Fixed Effect Model		Random Effect Model	
Constant	0.116833		0.11610	
Risk in earnings (σE)	-0.0204484		-0.0214465	
	T	-1.53	Z	-1.48
	P (t)	0.125	P (z)	.321
Risk in COF (σCOF)	-0.0015937		-0.0014586	
	T	-0.27	Z	-0.26
	P (t)	0.789	P (z)	0.865
Risk in Accrual (σA)	-0.0015851		-0.0012456	
	T	-0.11	Z	-0.13
	P (t)	0.914	P (z)	.922
R	0.0048		0.0050	
F-Statistic	3.15		1.14	
Observations (n)	658		658	
Hausman test	2.11 (0.3472)			

The results presented in table 5.3, shows that he random effect-model will be the best specification for testing model 2.

The insignificant Husman test suggest that random effect model presents efficient results, where the value of chi is find to be (2.11) with a p-value of (.3472).

The coefficient (-0.0214465) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in earnings on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in earnings.

The coefficient (-0.0014586) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in operating cash flow on the implied cost of equity, hence, we reject the hypothesis that there is a relation between implied cost of equity and risk in earnings.

The coefficient (-0.0012456) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in accruals on the implied cost of equity, hence, we reject the hypothesis that there is a relation between implied cost of equity and risk in accruals.

We conclude from the previous that there is no relation between implied cost of equity and risk in operating cash flow.

This study does not agree with Nekrasov (2012), where he found relationship between risk in earnings, and implied cost of equity. Also risk in cash flow and accrual components of earnings doesn't have importance in determining of a firm's cost of equity.

So we can't know anything about firm risk from those components as Nekrasov (2012).

5.3.3 Model (3): Regressions of the implied cost of equity on risk in earnings, cash flows, accruals, and accrual components in the case of smoothing:

$r_{j,t} = \beta_0 + \beta_1\sigma(Es_{j,t}) + \beta_2\sigma(CFOs_{j,t}) + \beta_3\sigma(\Delta AR_{j,t}) + \beta_4\sigma(\Delta Inv_{j,t}) + \beta_5\sigma(AP_{j,t}) + e_{j,t}$

Table 5.4: OLS using fixed and random effects model 3

	Fixed Effect Model		Random Effect Model	
Constant	**0.16944**		**0.1784456**	
Risk in Smoothed Earnings (σEs)	**-0.0671631**		**-0.0547231**	
	T	**-5.77**	**Z**	**-5.65**
	P (t)	**0.000**	**P (z)**	**0.000**
Risk in Smoothed COF (σCOFs)	**.0202615**		**0.0220469**	
	T	**0.69**	**Z**	**0.85**
	P (t)	**0.488**	**P (z)**	**0.396**
Risk in Change in AR ($\sigma\Delta$AR)	**0.0006848**		**-0.0020529**	
	T	**0.07**	**Z**	**-0.28**
	P (t)	**0.941**	**P (z)**	**.777**
Risk in Change in INV ($\sigma\Delta$INV)	**-0.0216749**		**-0.0204816**	
	T	**-1.31**	**Z**	**-2.93**
	P (t)	**0.192**	**P (z)**	**.003**
Risk in Change in AP ($\sigma\Delta$AP)	**-0.0085932**		**-0.0002713**	
	T	**-0.28**	**Z**	**-0.01**
	P (t)	**0.783**	**P (z)**	**.992**
R	**0.0618**		**0.0695**	
F-Statistic	**7.7**		**46.09**	
Observations (n)	**655**		**655**	
Hausman test	**10.33 (.0663)**			

The results presented in table 5.4, shows that he random effect-model will be the best specification for testing model 3.

The insignificant Husman test suggest that random effect model presents efficient results, where the value of chi is find to be (10.33) with a p-value of (0663).

The coefficient (-0.0547231) and it is found to be negative and statistically significant at 1% level, indicated to a negative impact of risk in smoothed earnings on the implied cost of equity, hence, we accept the hypothesis that there is a statistical significant relationship between cost of equity and risk in smoothed earnings.

This study does agree with Nekrasov (2012), where he found relationship between implied cost of equity and risk in smoothed earning, but the with negative sign, where Nekrasov found it positive.

The coefficient (-0.0214465) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in smoothed operating cash flow on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in smoothed operating cash flow.

The coefficient (-0.0020529) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in change in accounts receivable on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in accounts receivable.

The coefficient (-0.0204816) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in change in inventory on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in inventory.

The coefficient (-0.0002713) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in change in accounts payable on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in accounts payable.

This study not agree with Nekrasov (2012) regarding to the relation between the risk in smoothed operating cash flow, and smoothed accrual components. So there is no role for cash flows and accruals can be used to unravel the effect of smoothing in estimating firm risk.

5.3.4 Model (4): the effect of operating cash cycle and profit margin on the relation between cost of equity and risk in cash flows and accruals

$$r_{j,t} = \beta_0 + \beta_1\sigma(CFO_{j,t}) + \beta_2\delta_{j,t}\sigma(CFO_{j,t}) + \beta_3\pi_{j,t}\sigma(CFO_{j,t}) + \beta_4\sigma(A_{j,t}) + \beta_5\delta_{j,t}\sigma(A_{j,t}) + \beta_6\pi_{j,t}\sigma(A_{j,t}) + e_{j,t}$$

Table 5.5: OLS using fixed and random effects model 4

	Fixed Effect Model		**Random Effect Model**	
Constant	**0.1144505**		**0.1103591**	
Risk in COF (σCOF)	**-0.0268229**		**-0.016257**	
	T	**-1.75**	**Z**	**-1.28**
	P (t)	**.081**	**P (z)**	**.200**
relation between risks in operating cash flow and operating cash cycle ($\delta * \sigma(CFO)$)	**-6.59**		**-5.93**	
	T	**-0.35**	**Z**	**-0.31**
	P (t)	**0.725**	**P (z)**	**0.756**
relation between risks in operating cash flow and profit margin ($P.M * \sigma(CFO)$)	**1.86**		**4.71**	
	T	**0.82**	**Z**	**0.21**
	P (t)	**.412**	**P (z)**	**.837**
Risk in Accrual (σA)	**-.023380**		**-0.0102687**	
	T	**-1.43**	**Z**	**-0.78**
	P (t)	**.153**	**P (z)**	**.433**
relation between risks in accruals and operating cash cycle (($\delta * \sigma(A)$)	**-7.60**		**-7.01**	
	T	**-0.50**	**Z**	**-0.46**
	P (t)	**.616**	**P (z)**	**.647**
relation between risks in accruals and profit margin (($P.M * \sigma(A)$)	**1.55**		**1.10**	
	T	**0.53**	**Z**	**0.37**
	P (t)	**.598**	**P (z)**	**.709**
R	**0.0011**		**0.0011**	
F-Statistic	**1.18**		**0**	
Observations (n)	**647**		**647**	
Hausman test	**2.15 (.3410)**			

The results presented in table 5.5, shows that he random effect-model will be the best specification for testing model 3.

The insignificant Husman test suggest that random effect model presents efficient results, where the value of chi is find to be (2.15) with a p-value of (0.3410).

The coefficient (-0.016257) and it is found to be negative and statistically significant at 1% level, indicated to a negative impact of risk in operating cash flow on the implied cost of equity, hence, we accept the hypothesis that there is a statistical significant relationship between cost of equity and risk in smoothed earnings.

The coefficient (-5.93) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in relation between risks in operating cash flow and operating cash on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in smoothed operating cash flow.

The coefficient (4.71) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in relation between risks in operating cash flow and profit margin on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in accounts receivable.

The coefficient (-0.0102687) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in accruals on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in inventory.

The coefficient (-7.01) and it is found to be negative and statistically insignificant at 1% level, indicated to not a negative impact of risk in relation between risks in accruals and operating cash cycle on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in inventory.
The coefficient (1.10) and it is found to be positive and statistically insignificant at 1% level, indicated to not a positive impact of risk in relation between risks in accruals and profit margin on the implied cost of equity, hence, we reject the hypothesis that there is a statistical significant relationship between implied cost of equity and risk in change in inventory.
Also the study not agree with Nekrasov (2012) effect of operating cash cycle and profit margin on the relation between cost of equity and risk in cash flows and accruals.

5.4 Results

1- There is a relation between risk in earnings and cost of equity.
2- There is no relation between the implied cost of equity which represent the firm risk and the risk of accounting variables, because this linkage needs clear dividend policy, and constant growth in dividend , and our companies in Amman market don't have that.
3- Risk in cash flow and accruals can't catch the firm risk under smoothing conditions.
4- There is no effect for the of operating cash cycle and profit margin on the relation between cost of equity and risk in cash flows and accruals
5- Most of Amman market companies do not distribute profits regularly and focus on profits and retention policy for future growth.
6- There are a lot of companies that achieve significant losses, so that the market is suffering a lot of problems and speculation.

5.5 Recommendations

1- Amman market companies should follow clear (not random) dividend policy and clear growth rate in dividend, so they can detect the risk of the company through some accounting variables and thus estimate the cost of equity.
2- Must control biggest on the Amman Financial Market because he is suffering a lot of problems that weaken his performance.
3- There are problems in the disclosure of Amman market companies so that there is a lot of missing data for many companies, and therefore must impose restrictions and violations for companies that fail to disclose the data or issue financial statements incomplete.

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الملخص

بطاينه، خالد قاسم. **تكلفة الملكية ومخاطر مكونات العوائد من التدفقات النقدية والمستحقات: حالة دراسية من بورصة عمان للاوراق المالية 2000-2010.** رسالة ماجستير بجامعة اليرموك.2013م(إشراف: د.محمد العجلوني).

تبحث الدراسة بموضوع الخطر في التدفقات النقدية والمستحقات التي تشكل مكونات الارباح ، وعن المخاطر في الأرباح في ما اذا هي محددات هامة لتكلفة الملكية للشركة ، وما هو العامل الأكثر أهمية منها. أيضا تفحص قدرة هذه المكونات لالتقاط خطر الشركة في حالة تمهيد الارباح. تتكون العينة من الشركات المدرجة في بورصة عمان في البداية تم دراسة المخاطر في الأرباح لتقدير تكلفة حقوق الملكية، ثم دراسة دور خطر الأرباح والتدفق النقدي والمستحقات في تقدير تكلفة الملكية بحيث يتم استخدامها كبديل لمخاطر الشركة. لذلك تم اختبار دورها في معرفة مخاطر الشركة. أيضا تم تطوير نموذجا لتمهيد الارباح، ودراسة دور خطر مكونات الأرباح في تقدير خطر الشركة في حالة تمهيد الارباح. أيضا تم دراسة تأثير هامش الربح وطول دورة النقد التشغيلية على العلاقة بين المخاطر والخطر في التدفقات النقدية والمستحقات. وأظهرت النتائج أن الارباح هي أحد المحددات الجيدة للحصول على تكلفة الملكية للشركة. خطر التدفقات النقدية التشغيلية والمستحقات ليست أحد المحددات الجيدة لتكلفة حقوق الملكية. أيضا خطر التدفقات النقدية والمستحقات التي تشكل مكونات الارباح هو أداة ليست جيدة لكشف مخاطر الشركة في حالة تمهيد الارباح. أيضا هامش الربح ودورة النقد التشغيلية لا تؤثر على العلاقة بين الخطر في التدفق النقدي التشغيلي والمستحقات وتكلفة الملكية، وذلك لانه لايوجد سياسة واضحة لتوزيع أرباح الأسهم، ولا يوجد نمو مستمر في أرباح الأسهم لشركات بورصة عمان. لذلك نوصي بضرورة متابعة واضحة (وليست عشوائية) لسياسة توزيع الأرباح ومعدل نمو واضح في توزيع الارباح، حتى يتمكنوا من الكشف عن المخاطر للشركة من خلال بعض المتغيرات المحاسبية وبالتالي تقدير تكلفة حقوق الملكية.

الكلمات مفتاحية: تكلفة حقوق الملكية، الأرباح والتدفق النقدي التشغيل والمستحقات.